

development process which are indeed capable of 'sustaining people and nature'. These two books provide valuable insights into both the general nature of such an alliance and its capacity to challenge conventional positions in specific case studies.

KEITH RICHARDS
Department of Geography
University of Cambridge

COPING WITH FLOODS edited by G. Rossi, N. Harmancioglu and V. Yevjevich, NATO ASI Series, Kluwer Academic Publishers, Dordrecht, 1994. No. of pages: xiii + 776. Price: £193.00. ISBN 0-7923-2706-3.

This volume exists because of a perceived need to review two key developments in the flood mitigation field: firstly, the emergence of new technologies for real-time flood forecasting and warning, based mainly on the application of weather radar and satellite data; and secondly, the widespread shift from structural to non-structural measures, due mainly to a growing awareness of the adverse environmental effects of hydraulic works. In fact, these two themes, which are not particularly novel, occupy only a relatively small proportion of the book.

Over 50 contributors, almost exclusively from Europe and North America, have produced 40 chapters organized into six sections: historical overview, hydrologic characteristics, hydraulic characteristics, forecasting and warning, flood impacts, and flood mitigation measures. The most substantial sections are those dealing with the hydrological characteristics of floods, and the final section which appraises options for reducing flood losses. Although the total cover is wide, there are some surprises in the package. For example, despite a passing recognition of coastal flooding in Chapter One, only one contributor considers storm surge events, and there is

REFERENCES

- Blaikie, P. 1985. *The Political Economy of Soil Erosion in Developing Countries*, Longman, London.
Boserup, E. 1965. *The Conditions of Agricultural Growth: the Economics of Agrarian Change under Population Pressure*, Allen & Unwin, London.
Ives, J. D. and Messerli, B. 1989. *The Himalayan Dilemma: Reconciling Development and Conservation*, Routledge, London.

very little on the environmental effects of control structures. The section on the impacts of floods is especially thin. There are chapters on economic and environmental assessments, plus one on the public response to flood warnings, curiously misplaced from the flood forecast and warning section, but nothing on the mortality or morbidity resulting from flooding.

Given the remarkable scarcity of authoritative books on river floods and their management, compared to what is available for other natural hazards, this compendium will find an immediate role as a reference source in any library able to afford the rather high cost. But it will be used to reinforce existing knowledge because the approach adopted is essentially traditional and technology-led. Some of the best contributions are on flood estimation routines and—ironically in view of the stated context of the book—on structural control measures. The major weakness is that the contributors consistently reflect their own experience in western, developed countries. Apart from some limited comments in one chapter, nowhere is there any acknowledgement that floods exert their greatest toll in the Third World and that the most appropriate coping strategies in such countries may well be different from those described in this book.

KEITH SMITH
University of Stirling

REMOTE SENSING OF SEA ICE AND ICEBERGS edited by S. Haykin, E. O. Lewis, R. K. Raney and J. R. Rossiter, Wiley, Chichester, 1994. No. of pages: xxviii + 686. Price: £73.00. ISBN 0-471-55494-4.

Study of the earth's polar regions has, for a variety of reasons, developed dramatically over the last 25 years. The fact that these regions are remote from most human habitation, vast and inhospitable, implies that they are particularly well suited to airborne and spaceborne remote sensing methods. The fact that they are often in

darkness or covered by cloud has meant that those remote sensing techniques that use microwave radiation, either passively, by measuring thermally emitted radiation, or actively, using some type of radar, are especially important. As one would suspect, much of the recent technological development in these fields has occurred in Canada. This book presents a detailed description of recent developments, principally in Canada, in the remote sensing of sea ice and icebergs. It is mainly organized by techniques, but it will perhaps be useful for me to list here the main parameters that are discussed. These are the detection of ice floes and

bergs (by airborne or spaceborne imaging radar, by over-the-horizon HF radar, or at nearer range by ground-based, ship-based or rig-based microwave radar), mechanical properties of ice (by *in situ* seismic and acoustic methods), ice thickness (by airborne electromagnetic induction methods and ice-thickness radars), ice concentration (by passive microwave radiometry and imaging radar), ice type (by passive microwave radiometry or imaging radar), and ice dynamics (from time series of airborne or spaceborne imaging radar). All of these techniques are discussed in considerable detail, and a number of practical examples of implementation are given, based on Canadian experience. In addition, the book contains some introductory remarks on the status of remote sensing research in Canada, some concluding remarks on the forthcoming Canadian Radarsat satellite mission and on future research directions, and a superb 70-page review of the physical properties of sea ice, glacier ice and snow.

If the book has a drawback, it is that its title is slightly misleading in implying a comprehensiveness that is not really present. The book essentially treats only the most up-to-date techniques of remote sensing of sea ice and icebergs, and largely ignores (for example) the use of visible and near-infrared imagery which still forms a major component of operational ice mapping. However, this 'missing' information is readily available from other sources, and I certainly expect to be making significant use of this book in future. Anyone interested in sea ice and icebergs and how they are detected, or in the technical aspects of the development of remote sensing systems, will also want to have access to this book.

W. G. REES
Scott Polar Research Institute
University of Cambridge

ENVIRONMENTAL CHANGE IN DRYLANDS: BIOGEOGRAPHICAL AND GEOMORPHOLOGICAL PERSPECTIVES edited by A. C. Millington and K. Pye, John Wiley and Sons, Chichester, 1994. No. of pages: xv + 456. Price: £65.00. ISBN 0-471-94267-7.

Environmental change in drylands continues to attract broad attention owing to the fact that many of the effects of environmental change are poorly understood, data are scarce and long-term monitoring is rare.

This collection of papers, presented at a symposium on the *Effects of Environmental Change in Drylands* (jointly organized by the Biogeography Research Group and the BGRG and held at the Institute of British Geographers Annual Conference in Swansea, in January 1992), reflects the diversity and complexity of the topic and draws upon work done primarily by geomorphologists and biogeographers.

This admirably produced volume (the ninth in the BGRG Symposia series) contains 23 papers organized loosely into two sections: long-term and medium-term studies, before the last 1000 years, including the late Quaternary (chapters 2 to 11); and short-term studies of the last 1000 years (chapters 12 to 22). These are preceded by an excellent and thorough overview of deserts in a warmer world by Professor Andrew Goudie, and a final editorial chapter reviews research on the effects of environmental change in drylands.

Nash, Thomas and Shaw provide a very useful study concluding that the development of large 'fossil' dryland valley systems (using the valley networks in the Kalahari) during former wetter periods may be an oversimplification. White and Walden demonstrate the potential for using mineral magnetic analysis in establishing relative chronosequences on alluvial fan surfaces in the Tunisian

Southern Atlas. Harvey and Wells, from their study of alluvial fans in the southern Soda Mountains in the Mojave Desert of California, provide yet another piece of evidence for a wetter and colder climate during the late Pleistocene. The papers by Alexander *et al.* and Macklin *et al.* deal with badland slopes and fluvial and lacustrine sediment records from southeast and northeast Spain, respectively.

Metcalfe *et al.* provide an interesting study from palaeolimnological sediments of closed-basin lakes in Central Mexico of the effects of anthropogenic disturbance and climate change, while Lamb *et al.* discuss lacustrine sedimentary processes in high-altitude, semi-arid Lake Isli, in the High Atlas of Morocco. Abrupt Holocene hydro-climatic events from lake basins on the southern and northern margins of the Sahara are analysed by Roberts *et al.* Ballais discusses the causes of desertification and aeolian activity in eastern Algeria, while Yair provides an example of the effects of variations in climate change on environmental processes from various sites in Israel.

There is an interesting group of four papers on anthropogenic and natural processes and their interrelationships in such diverse geographic locales as Libya, the Fertile Crescent, semi-arid Australia and southern France. The use of stochastic methods in modelling dryland ecosystems is outlined by Thornes and Brandt. Hughes provides a study dealing with semi-arid floodplain forests, and Drake and Bryant point out the usefulness of using AVHRR imagery to estimate the flooding ratio of nine Tunisian plays.

The papers by Goosens *et al.* and Dickenson *et al.* deal with the environmental effects of land reclamation in the western Nile Delta region and the Wadi Allgi area, on the eastern side of Lake Nasser in southern Egypt, respectively. Finally, two papers by Mitchell and Fuller and